

## CLAIMS

We claim:

- 1 1. Method for evaluating a network, comprising the steps  
2 of:  
3 executing a burst test to determine the network's  
4 streaming speed, said burst test including  
5 transmitting a plurality of packets over said  
6 network to a receiver; and  
7 determining the time of receipt of each said  
8 packets by said receiver; and  
9 responsive to said time of receipt of each said  
10 packets, calculating the current speed of said network.

1 2. The method of claim 1, further comprising the step of:

2 evaluating as the maximum speed of said network the  
3 best observed time of receipt for the plurality of  
4 packets.

1 3. The method of claim 2, further comprising the step of

2 responsive to detecting several instances of said time  
3 of receipt representing current speeds close to said  
4 maximum speed, determining that testing has stabilized.

1 4. The method of claim 1, said transmitting step  
2 comprising the transmission of logical best bursts.

1 5. The method of claim 1, said transmitting step  
2 comprising the transmission of packets of a size equal to  
3 network maximum packet size (MTU).

1 6. The method of claim 5, further comprising the step of:

2       determining said MTU as the maximum size of packets  
3       successfully transmitted without fragmentation.

1       7.    The method of claim 2, further comprising the step of:  
  
2       calculating an average streaming utilization percent by  
3       taking the ratio of average burst rate to best burst  
4       rate.

1       8.    The method of claim 7, further comprising the step of:  
  
2       adjusting average streaming utilization for occurrences  
3       of burst frame discards.

1       9.    The method of claim 1, said transmitting step including  
2       the transmission of complex bursts in which short and long  
3       frames are transmitted per test iteration.

1       10.   The method of claim 9, further comprising the step of  
2       determining the streaming speed of said network by dividing

3 the difference in size of said short frames and said long  
4 frames by the difference in transmission time between short  
5 frames and long frames.

1 11. Method for establishing network characteristics  
2 including the historical, current, and predicted future of  
3 states of a network for all types of network traffic,  
4 including interactive, browser, batch, and realtime traffic,  
5 comprising the steps of:

6 transmitting probative packets into said network, said  
7 packets including echoed and non-echoed packets, of  
8 like and differing lengths, of like and differing  
9 network priority, individually and in bursts;

10 measuring the transit times of said probative packets;  
11 and

12 responsive to said transit times, determining the  
13 streaming speed of said network.

1 12. System for evaluating the characteristics of a network,

2 comprising:

3 a send node for communicating probative packets into  
4 said network, said packets including burst packets;

5 a receive node for determining that frames of said  
6 packets are received in sequence and without  
7 retransmission, and the elapsed time between first  
8 through last frames of said packets;

9 a speed analysis application responsive to said elapsed  
10 time and the size of said packets for calculating  
11 network speed.

1 13. A program storage device readable by a machine,  
2 tangibly embodying a program of instructions executable by a  
3 machine to perform method steps for evaluating the  
4 characteristics of a network, said method steps comprising:

5 communicating probative packets into said network, said  
6 packets including burst packets;

7 determining at the receiver of said packets that frames

8 of said packets are received in sequence and without  
9 retransmission, and the elapsed time between first  
10 through last frames of said packets;  
  
11 responsive to said elapsed time and the size of said  
12 packets for calculating network speed.

1 14. An article of manufacture comprising:

2 a computer useable medium having computer readable program  
3 code means embodied therein for evaluating a network, the  
4 computer readable program means in said article of  
5 manufacture comprising:

6 computer readable program code means for causing a  
7 computer to effect executing a burst test to determine  
8 the network's streaming speed, said burst test  
9 including

10 transmitting a plurality of packets over said  
11 network to a receiver; and

12 determining the time of receipt of each said

13                    packets by said receiver; and

14                    computer readable program code means for causing a  
15                    computer to effect responsive to said time of receipt  
16                    of each said packets, calculating the current speed of  
17                    said network.

1                    15. A computer program product or computer program element  
2                    for executing the steps of:

3                    transmitting probative packets into said network, said  
4                    packets including echoed and non-echoed packets, of  
5                    like and differing lengths, of like and differing  
6                    network priority, individually and in bursts;

7                    measuring the transit times of said probative packets;  
8                    and

9                    responsive to said transit times, determining the  
10                    streaming speed of said network.